

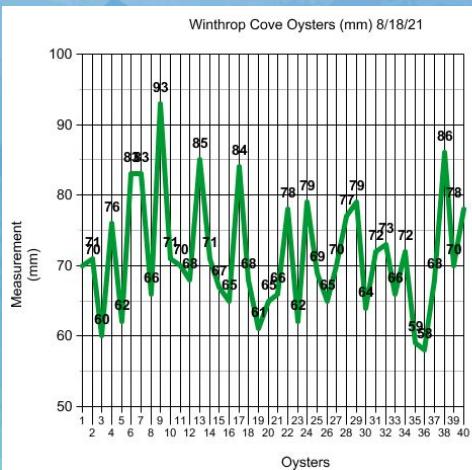
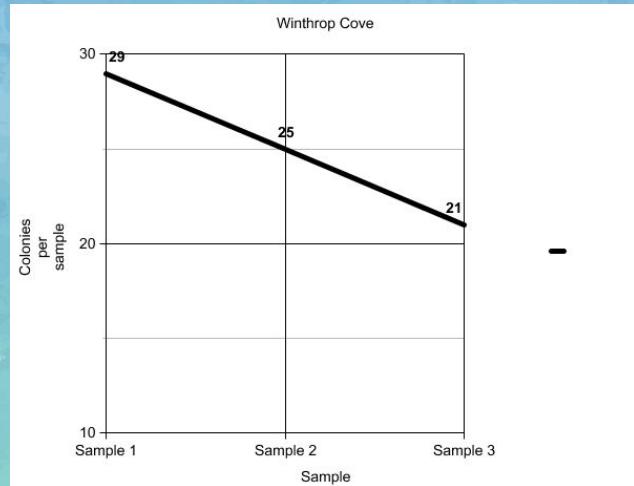
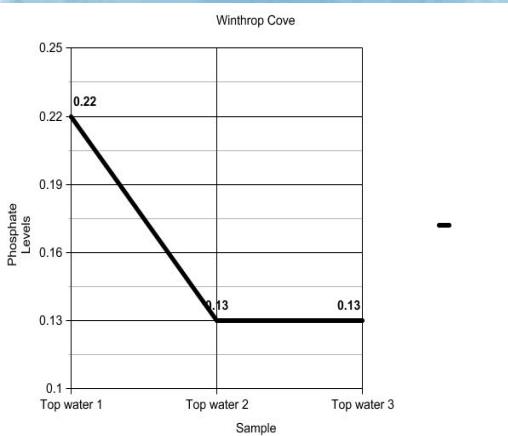
Winthrop Cove

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Winthrop Cove site- Data from Project O 2

Sample	Phosphate (mg/L)
Top water 1	.22
Top water 2	.13
Top water 3	.13

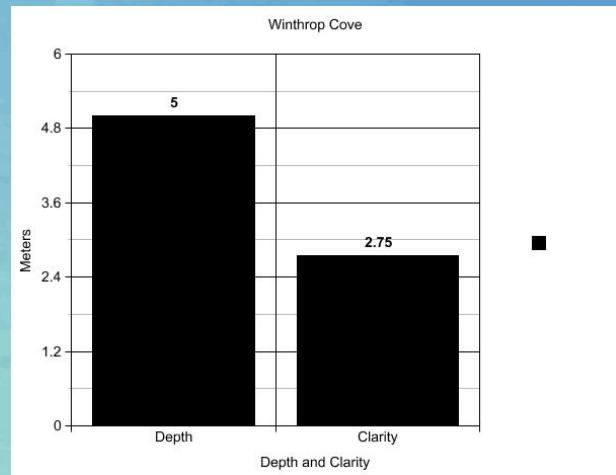
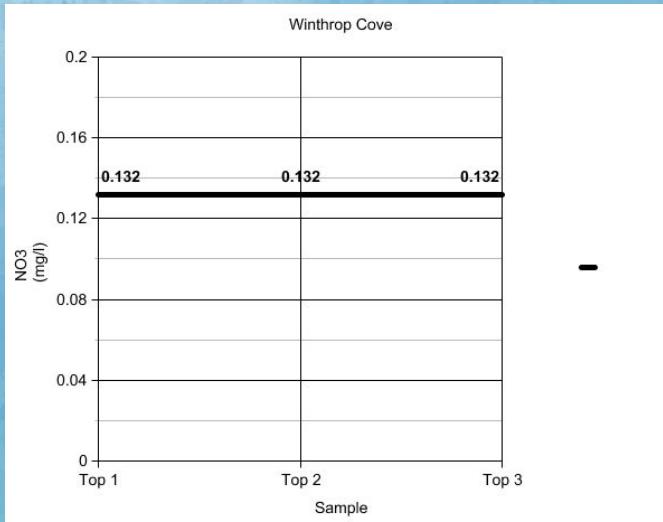
Site	Samples	Colonies average
Winthrop Cove	Sample 1: 29 Sample 2: 25 Sample 3: 21	21



Winthrop Cove site- Data from Project O 2

Site (NO ₃ concentration)	Top 1	Top 2	Top 3
Winthrop Cove	.132 mg/l	.132 mg/l	.132 mg/l

Location	Winthrop Cove
Depth (meters)	5.0
Color	Green-Brown
Clarity (meters)	2.75



★ What environmental amenities are located near the area? - Jack Konopka

There are a number of wastewater treatment plants located right near the Winthrop Cove; this helps with the amount of waste water getting into the Cove. The Town of Groton plans to upgrade their treatment plants and will help with the amount of water that gets treated per day from 5.0 million gallons to 7.5 million gallons. This upgrade will also consist of nitrogen removal facilities to achieve compliance with the general permit for nitrogen discharges from wastewater treatment plants. They plan on making changes to the sanitary sewer service area to improve pollution.

A daily load has been implemented for Long Island Sound to hopefully limit the amount of discharge of nitrogen which is causing hypoxia(very low levels of dissolved oxygen) and harming the survival of marine animals.



Environmental Hazards surrounding Winthrop Cove

Specific times when we have seen hazards around Winthrop Cove

- ★ From 1998 to 2018, there were 3 different hazards reported. In 1998, pollution was detected in groundwater which could affect drinking wells. In 1999, pollution was detected again possibly affecting drinking wells, In 2018, pollution was detected in drinking wells.

How did we respond to these hazards?

- ★ 1998: DEEP installed a carbon filter system
- ★ 1999: DEEP has continued to monitor and treat water
- ★ 2018: Pollution was not detected but supplied bottled water

★ What past land uses may have influenced the results?

- The Thames River watershed consists of 44% urban, 35% forest, 19% water, and 2% agriculture land uses.
- The U.S. Coast Guard Academy has a drain below Roland Hall which is currently a field house at the academy, it has raw sewage that has been flowing right into the Thames River for 20 years.
- There is a large amount of nitrogen entering the Long Island Sound from coastal communities, precipitation, and streams caused algal blooms.
- Also affected is the results of the quality of water from natural processes like soil infiltration because of stormwater and plant uptake of water and nutrients all occur in undeveloped portions of the watershed.



★ What present land uses may be influencing the results?

- Six sewage treatment plants in Connecticut empty into the Thames between Norwich and New London, and another half dozen industrial plants, including the AES Thames and NRG power plants in Montville and Electric Boat in Groton, discharge wastewater into the river.
- Polluted runoff from farms, lawns, septic tanks, roads and parking lots spills freely downstream and ends up in the river.

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- ★ What is the demographic composition (income, minority population, etc.) of the community adjacent to the sampling sites?
 - ★ The population in this area is about 30,000 with the estimated median household income at \$47,000. Whites make up the highest percentage of the population, hispanics make up the second highest percent of the population just a little above blacks. The percentage of people living in poverty in New London is about 25%..

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- ★ Using the data collected on the 3 cruises along with the EPA EJSscreen, Neighborhoods at Risk, and any other relevant data, identify and explain any environmental justice concerns that you find.
 - ★ The Winthrop Cove area contains numerous alarming statistics regarding environmental justice. This area ranks in at least the 84th percentile nationally in hazardous waste, traffic, lead paint indicator, and Superfund proximity. A Superfund site is an abandoned hazardous waste site, which can somewhat explain the hazardous waste index. All of these are harmful to the environment that Winthrop Cove resides in and raise an eye to environmental justice concerns. The demographic of this area ranks above the 77th percentile in low income population, people of color population, and linguistically isolated population. These numbers do not illustrate the fair treatment of all people regardless of race, color, or income proving to be environmental justice issues.

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- ★ Describe new question(s) that should be investigated to build on these results, and what future data should be collected to answer these questions.
 - Why are the oxygen levels in the river so low?
 - Why does the oxygen levels drop every summer?
 - To answer these questions we need to record salinity, temperature, and oxygen levels at various depths around the harbor.

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- ★ Describe an Action Project that might be developed at each impacted site to improve conditions for the local community.
 - ★ Winthrop Cove suffers environmental justice due to the fact that they rank in high percentiles in hazardous waste, low income, and Superfund proximity, among other things. The first step for an Action Project would be to inform the local community of the environmental dangers that are in their area. The Winthrop Cove community can take steps to raise awareness for these concerns among others in the community. The next step in this process would be to create fundraisers to raise money towards removing things such as the hazardous waste and taking steps to remove the high amounts of lead paint.

Sources

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